From: Michael Rozengurt [mailto:rozengurt@earthlink.net]
Sent: Wednesday, April 06, 2011 4:50 AM
To: Alvarez, Eric@DeltaCouncil

Subject: about water

Dear Eric,

I send you a couple of documents that may widening the question of interest.

Michael

Introduction.

# Dear Friends of Rivers, Deltas, Estuaries, and Coastal Waters,

You may appreciate the significance of the attached letter to fmr. Gov. Jerry Brown, son of the famous "Father of the State Water Project". It suggests that the 1982 Bond issue for the Peripheral Canal anal was a heart attack in waiting when one understands that Mother Nature can only give up 25-30 of her average annual runoff to support all the needs of man. More than this and the system itself goes belly-up, which is exactly has happened since this historic watershed when the son rejected the final piece of the father's dream.

This was the guy called "Gov. Moonbeam" for his radical ideas about alternative energy sources powering the state's future. See what that idea got us, then reach for your wallet!

We all remember the telecast on the eve of the election, when son Jerry carefully reviewed his famous graphs to explain the effects of the project on water supply and the San Francisco Bay-Delta. And then took his stand neither for nor against the Department of Water Resources last grand attempt to replumb the heart of this rich ecosystem, and thereby sealed his future political fate.

Now, decades later, the lesson must be taught again. The CalFed program is trying to do the same end-run of the Delta, in order to improve water quality and yield of the project along with even more dams. This time Dianne Feinstein has joined in with a bill that guarantees farm water but not fish water. Again we say no, the 50-80% average water withdrawals have already caused a loss of over 90% of the biological remnant that was left back in the 1960-70s. How's a fish to live out of water?

What do you think? Write Governer Davis, Brown's former lieutenant, and remind him that fish were born to swim, not walk through the mud filling the dams and canals of the State Water Project.

Retirees for more free flowing waters. Here is the letter that was sent to any entitis and persons who were involved in saving the **DELTA - SAN** 

#### FRANCISCO BAY.

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\*\* Letter to Governor J.Brown June 20, 1980

Honorable Governor Jerry Brown

Sacramento California

This letter is being written to appraise you of certain facts which must

be considered in your deliberations on the Peripheral canal issue currently before the California legislature and being discussed almost daily in the news.

This issue has not only statewide, but national significance, as an example of large scale water development for which important ecological, economical, and social effects have already been demonstrated in similar programs of other nations.

The following facts are apparent to us, as professionals examining the demise of the San Francisco Bay Delta; some of these derive directly from observing the corpses of other similar ecosystems abroad:

- 1. There are should be no further water projects' constriction, including the Peripheral canal, until such time as new cost-benefit analyses have been done and predictions are made as to the relation between Delta outflow and (a) salt intrusion in San Francisco Bay, (b) pollution and waste treatment needs and (c) productivity of the entire system.
- 2. There should be no further water withdrawals from the existing Delta pool as history both here and abroad has shown severe economic and environmental damage results from greater than 30 % reductions in the natural flow.

The lack of data to understand this system and to make adequate predictions is appalling and must be corrected immediately by a major research effort.

This must lead to a proper monitoring program to prevent future problems. The cost of these programs is estimated as at least \$2 million per year, but .this is minuscule compared to the \$11 billion expenditure contemplated for replumbing the system to meet only man's perceived needs.

3. The primary question which must be answered prior to any further water development (or replumbing) is the following "What is the natural limit water withdrawls from the Sacramento River and its Delta?"

The experience of foreign countries is frightening: diversion of no more than 30 to 50 % of the normal ,natural runoff (computed as averaged for 55 years) has led to serious immediate consequences and subsequent , successive degradation of resources, including finally the destruction of the diverted water supply itself due to salt intrusion from an adjacent estuary and sea . Note that these results did not occur all at once, but developed slowly at first and more rapidly toward the end.

June 20, 1980

Page 2

This result could be predicted at the outset, for its is quite evident

now in well documented case histories. The total time span involved in the above events was measured in years, not decades or centuries, from the point of withdrawals beyond 30% of the natural, spring outflow. This leads us to predict that "25-30% is nature's limit!" We note with alarm that withdrawals from the River-Delta currently exceed 50%, with eventual projections scheduled for 75% or more of the normal, natural flows.

We predict that the system will collapse long before this point is reached, although we would not be pleased to see this prediction come true. More to the point, we feel that there is an immediate need to protect the Delta from the already observed salinity intrusions resulting from excessive water development. Dams and the Peripheral Canal cannot correct maintaining of a positive balance of brackish and fresh water exchange necessary to sustain natural estuarine conditions, created by Nature. Other solutions exist and should be examined for their applicability to this important problem.

The Peripheral canal, by itself, cannot flush this system and cannot prevent the salt intrusion water already occurring with alarming frequency. Such a canal will destroy even more of the natural circulation and exacerbate chemical and biological deltaic environment. This is directly opposite to nature's way of enriching the system with a meandering flow and its natural reversals (due to tides and winds, not pumping activities).

A similar, to proposed one, the Peripheral Canal was built on the eastern part of Volga Delta in 1974 to restore the low river- delta tributaries. Here anadromous (beluga, sevruga, sturgeon) and semi-anadromous fish (herring, shad, others) migrate to spawn, and feed. But the Canal nearly stop these activities. And due to excessive upstream and downstream water development, the fishery had declined precipitously.

We would point out that the Delta is not plumbing water distribution system. Historically, any delta is the heart of a rich productive river ecosystem. It receives nutrients from upstream; produces, processes and circulates its own additional nutrients within its fresh and brackish water body; and subsequently affects the rich productivity of the estuary (bay) and even the coastal sea. Any change in the course of this vital bloodstream or in the quality of its fluids will lead to change, much of which has already been shown to be detrimental to societal and economic as well as ecological systems.

My colleague and I represent almost 50 years of working experience in marine and estuarine biology, hydrology, and oceanography. This experience is directly pertinent to the problems faced today by the Delta - San Francisco Bay system. Our collective experience leads us to state that, without doubt a final result of further water developments will lead to economic, societal, and ecological ruin for the Delta - Bay for the predominant residual runoff to the San Francisco Bay corresponds to years of subnormal wetness or drought.

Published results regarding similar water development abroad (the Rivers Don and Kuban, the Volga and Terek, the Dnieper and Dniester, and the Nile and Po, which enter the Azov, Caspian, Black, and Mediterranean Seas, respectively) all point to the inescapable conclusion that no more than 25-30 % of the natural flow can be diverted

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without disastrous consequences. The historical, average annual Delta outflow tributary to northern San Francisco Bay was 28.5 MAF (1871-1929) and is presently about 14 MAF, a 50% reduction. A similar runoff decline had occurred in 1923-24 and led to very serious effects even prior to major water developments. This natural lesson should be kept in mind when discussing eventual projections of 75% water withdrawals from the Sacramento River in 1990.

The early warning signs of this excessive withdrawal are apparent in the reduced productivity of fish and wildlife resources, increased salinity intrusion affecting municipal and agricultural water supplies, increased effects of pollution loads in progressively more stagnant waters, and both subtle and gross changes in .the delta system's configuration and flow pattern.

These impacts are all the same in kind (not yet in degree) as have been thoroughly documented elsewhere. As such, equal or greater disruption to the ecology and basic economy of this system can be expected in the future. Taken together, these findings adequately demonstrate that the costs of eventual losses, where they are fully known orbe projected, far exceed any short-term benefits gained.

More importantly, it has also been demonstrated that many engineering works designed specifically to mitigate prior environmental disruption only exacerbated the problem and accelerated the eventual outcome. Detailed reports have been published over the past decade which .have addressed the problems of water resources development leading to the subsequent destruction of the resource itself.

We are scientists and cannot advise you on the difficult political realities of this general problem. Nor can we understand the approach of some engineers: "first must build and answer questions later." "Final answers to many of our most perplexing questions must be derived from the construction and operation." This quote was attributed to former Director Harvey Banks in the fifties (New West Magazine, June 16, 1980). We do know that if one follows nature's example, and answers the questions the same manner that nature has, then the result will be safe for both the environment and man.

Yours very truly, lrwin Haydock, Ph.D. ( Marine Ecology) Michael Rozengurt, Ph.D., P.E. (Oceanography, Hydrology) From: mrozengurt

Full-Name: Michael Rozengurt

To: CALFED Fcc: Sent

Date: Tue, 21 Jul 1998 22:35:47

Subject: mrozengurt: No one can get something from nothing (Universal

Physics)

Message-ID: <19980721.223458.18527.3.mrozengurt@juno.com>

X-Status: Forwarded X-Mailer: Juno 1.49

----- Begin forwarded message -----

From: mrozengurt

To: hans.wolter@fao.org, kuylenstierna@un.org, terttu.melvasalo@unep.org

Subject: No one can get something from nothing (Universal Physics)

Date: Thu, 16 Jul 1998 23:50:52

Message-ID: <19980716.235004.2311.0.mrozengurt@juno.com>

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To whom it is of concern:

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The following statement I submitted to Cal-Fed (Coalition of California State and Federal Regulatory Agencies) in regard to the latest feeble attempt to fix the broken Sacramento - San Joaquin delta-San Francisco Bay ecosystem by use the sophisticated engineering alternatives built in the Delta whose controversial plumbing will further facilitate systemic water starvation of the deltaic migration, spawning, breeding, and feeding ground for estuarine-depended fishes and else.

May 5, 1998

CalFed Public Hearing

University High School

Irvine, CA 92716

Subject: March 1998 Draft Programmatic EIS/EIR

On the subject of CalFed's EIS/EIR, I would like to bring to your attention that the major threat to Californian riverine and coastal ecosystem health and sustainability is caused by excessive impoundment of rivers by dams and the subsequent water diversion for human usage.

We must remember that Nature has a limit, and work wisely within that framework to serve humankind.

The significance of this threat to the Nation's water quality and resources of coastal ecosystems and their economics and societal infrastructure has not been appropriately recognized or appreciated by CalFed. As a result of dams and diversions, coastal ecosystems have been suffered from immense economic and ecological penalties similar to that documented in the former U.S.S.R. (Rozengurt and Herz 1981; Rozengurt, et al. 1985, 1987; Rozengurt and Haydock 1981, 1991, 1993).

Since the late 1960s in the former U.S.S.R., 30 major and 100s of minor dams on rivers of the Black, Caspian, Azov, and Aral seas' basins have retained 60 to 97% of spring freshwater flux. Subsequently, this impoundment and enormous cumulative losses of over hundreds of

millions of acre-feet (hundreds of cubic kilometers) of runoff have inflicted a mortal blow to habitat and destroyed migration, spawning and nursery grounds of 90-98% of the valuable species of recreational and commercial fish in the southern U.S.S.R. Economic losses for fishery alone have amounted up to \$4 to 5 billion per year with thousands of boats and hundreds of thousands of fishermen out of work.

Today, no one in Russia uses the word "restoration." All attempts to restore the fisheries have failed - the current habitats have nothing in common with their teeming past. Within just twenty years, all seas were transformed into "blue deserts."

The Aral Sea has ceased to exist. Salt dust and toxins blown from the sea bottom fell back to earth and destroyed crops for hundreds of miles downwind. Contaminated drinking wells make the infant mortality in Central Asia's (the Aral Sea watershed) nearly five times the Soviet

average - a staggering 10 to 20% of all babies born. (Is this a future threat to the Owen's Valley population?)

In general, since the 1970s the southern watersheds of the former U.S.S.R. have symbolized management's staggering ignorance of major Laws of the Universe (thermodynamics) which govern ecosystem sustainability (Rozengurt, 1993, 1994, Rozengurt and Hedgpeth, 1997). As a result, the past misguided search for short-term economic gain has not been rectified by an overhaul of the entire system.

Unfortunately, California's water management appears to follow the same path of the entire arid and semi-arid southwest "Sunbelt" where burgeoning water development is only slightly less ominous than that in the Black, Azov, and Caspian seas' watersheds (Rozengurt and Hedgpeth, 1989).

I determined for Russian rivers over twenty years ago, and in the 1980s for the Sacramento - San Joaquin rivers, that when annual water withdrawals exceed 30% (or 50 to 90% of normal spring runoff) then the estuary's natural functioning is largely destroyed or brought to the brink due to enormous cumulative water deficits and watershed desiccations by dams and diversions. Other examples, besides the Sacramento-San Joaquin river delta-San Francisco Bay-coastal ecosystem are: the Snake River/Columbia River and coastal zone; Florida's "Everglades," and Florida, Tampa, and Charlotte bays; the Nile River Delta; some 40 estuaries of the Gulf of Mexico, especially several in Texas; and the Chesapeake Bay (Halim, 1991; Robinson 1981; Rozengurt et al., 1987b; Simenstad et al., 1992;).

This implies the following summary facts:

- (1) all these systems and the entire Central and South Atlantic and Western Pacific coastal waters have been deprived of many thousand millions of acre-feet of runoff that it is vital for their survival;
- (2) the remnants of residual or "regulated" flow often correspond to an actual dry year or a chronic drought condition from the perspective of functioning of ecosystems regardless of wetness of the year; and
- (3) progressive entropy (system agony resulting from Second Law of Thermodynamics) is now a permanent feature of human-influenced riverine deltaic estuarine- coastal ecosystems' regime.

The cumulative effect of these related processes eventually leads to the demise of the water body itself (for example, the Delta-San Francisco Bay system), the same as we would die of such a constant hemorrhage of our blood. In addition to destroying valuable fisheries, large-scale freshwater diversions have jeopardized the deltaic drinking freshwater intakes themselves due to an inexorable increase of brackish or salty

water intrusion (Second Law) and made some formerly lush regions uninhabitable to humans (example, Aral seas, Owens Lake, Colorado Delta).

In terms of relative scale, I believe that flow diversions dwarf both wetlands' losses and pollution as threats to the "health" of coastal ecosystems and their living marine resources.

This threat of continued excessive water diversions on the California water resources should be a primary focus of called. However, they have allocated no funds to address this problem and no mention is even made in their studies. [This same lack of recognition is reflected in the EPA's Environmental Monitoring and Assessment Program (MAP), and in USES water quality studies.]

I believe that called should therefore be directed to provide the leadership in assessment of limitations in water development as it affects fisheries and other resources. Their immediate task should be to review the full significance of the threat and to formulate plans based on natural sustainability and the environmental, economic, and societal compatibility of water development by different water users. This may halt trends apparent here and already realized in the despoliation of former Soviet Union's estuarine - marine ecosystems. Such work would be invaluable for alternative political, economic and ecological decision-making by California's administration.

I urge you to facilitate a more rational water policy based on the fact that:

- 1. California possesses only 28.5 MAN of normal, unimpaired runoff over a perennial period (averaged over 60 years) in the Sacramento San Joaquin watershed. This amount determines entirely the survival of the Delta San Francisco Bay and the State's precious coastal resources;
- 2. Spring runoff, the lifeblood of any water system, has already been reduced to 10 to 30% of what once was around 11 MAF on average (as computed over 55 to 60 years, averaged, normal, unimpaired runoff);
- 3. Since 1955 the Bay has deprived over 600 MAF(million acre- feet, or 720 cubic kilometers) of freshwater runoff, and millions of tons of organic and inorganic matter, suspended sediment, oxygen, and etc. left behind the dams and in water conveyance facilities;

According to physics, "No one can get something from nothing." California's water management has already reached NOTHING. Any talk about "Restoration" of the Delta or Bay is a dangerous fallacy! I appreciate this opportunity to comment on CalFed's ambitious but flawed report.

Sincerely,

Michael A. Rozengurt, Ph.D., P.H.

Physical Oceanographer and Hydrologist

Huntington Beach, CA

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Subject: Letter to the President

Date: Wed, 10 Jun 1998 14:42:09 EDT

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May 23, 1998

The Honorable William J. Clinton President of the United States The White House Washington, D.C. 20050

Dear Mr. President:

We thank you for the giant environmental step your administration has taken in sponsoring the National Ocean Conference (NOC) in Monterey CA on June 11-12. This crucial forum will have lasting impact if you use the opportunity to make clear that there is a vital connection between a naturally functioning watershed and the sustainable riches of its coastal zone. Over 500 billion dollars has been spent since 1970 to rid this nation of water pollution; at least as much will now be expended to improve the health and management of our watershed-coastal zone complex. It is still not well understood that watersheds and their coastal zones form a single complex ecosystem; damage to one reach is eventually seen in the other. We wish we could be at the June NOC to make this point. But as you gaze over Monterey Bay, where a huge river once cut a channel deeper than the Grand Canyon, be aware that all the natural aquatic ecosystems of California are in danger of disappearing along with their adjacent coastal zone resources. The MBNMS is not the only system in danger.

Northern California is presently struggling to save the "broken delta" of the Sacramento-San Joaquin rivers, while planning to withdraw even more water to satisfy the contracted "needs" of agriculture, industry and a burgeoning population. In the Southern California Bight, 26 major and some 150 minor waterways have been damned and depleted, leading to major declines in

coastal resources. Massive efforts to severely reduce pollution coming from 15 million inhabitants and their industries have not brought concomitant resource recovery in this area. Similar water development schemes elsewhere have presented us with severe resource problems in the Colorado and Columbia river systems, Gulf of Mexico, and East Coast and Florida bays and estuaries.

For too long we have failed to understand the nature of this link, and have blamed a multitude of other sins (habitat destruction, pollution, overfishing, and, now, even global warming) for the obvious decline in our sea's resources. As those bright fellows Sir Isaac Newton and Albert Einstein taught, you can't get something from nothing! Although each new sin may compound our problems, without some remaining semblance of a naturally functioning watershed the coastal zone resources will continue to decline, costing our economy billions.

Even the now protected Monterey Bay National Marine Sanctuary (MBNMS) will not survive, and this fact will not change much by further scientific studies of pollution, overfishing, or other concerns not related to the overarching problem of fresh water depletion. We have been looking in the wrong place for the cause of the ocean's decline! It is time to focus on the critical link between watersheds and seas. It's the water that forged and strengthened this link over the past several thousand years.

Decades of careful study and experience has shown us this problem stems primarily from the cumulative effects of dam building and subsequent freshwater diversions to serve human needs.

A practical limit is diversion of more than 25-30% of the average natural freshwater runoff. Exceeding this amount has denied coastal waters of billions of tons of sediments, nutrients, oxygen, and other trace materials. These elements, along with the natural hydrological mixing and entrainment processes of Spring flushing, are essential to maintain even a small part of the formerly teeming coastal zone sustaining 90% of our most important fish and shellfish resources. Not every drop of water reaching the sea is wasted (contrary to the cries of water developers). The long-term, cumulative effects of runoff depletion on the delta-estuary-bay-coastal complex have just begun to receive wider attention. Future work deserves an integrated system approach that can only be accomplished by the wonderfully diverse talents brought together for your NOC.

Please raise the bar by challenging them to work in concert with other estuarine and freshwater stake-holders to research, develop and manage lasting solutions for all future generations.

These facts have long been apparent to us, are well documented globally and are clearly seen in ecosystems destruction in the former Soviet Union, including a shriveled Aral Sea, drastic increase salinity concentration in western Black Sea and entirely Sea of Azov, and 150 billion dollars in lost fishery catch in the Black, Azov, Caspian, and Aral Seas.

Elsewhere in Asia and the Middle East, the water supply crisis has advanced to the stage where the looming issue is "environmental security." This strategic aspect of water is now becoming more prominent in our daily news.

Mr. President, your trip west in June would be seen by us as a great success were you to call attention to the role played by runoff in maintaining the rich and abundant productivity of the nation's watershed ecosystem (river-delta-estuary-bay-coastal zone complex). Use this opportunity to announce initiatives to determine the appropriate division of this nation's fresh water, halting the cumulative effects that diversions have already had on formerly rich estuarine and coastal waters. Until watershed limits are determined in a comprehensive, integrated way we predict continued decline in renewable resources and further degradation in coastal water quality.

This fact will eventually result in even more serious consequences than just the "water wars" we are continually trying to avoid here in that continue to inhibit progress in understanding the bigger picture of the nature of water and its vital role in maintaining our priceless coastal zone.

# Respectfully,

Irwin Haydock, Ph.D.; Aquatic Ecologist, Fountain Valley, CA Michael Rozengurt, Ph.D., P.H. (Oceanographer and Hydrologist). Together representing over 80 years of watershed-coastal zone science and management. Huntington Beach, CA.

cc: Honorable Vice President, Al Gore, Kathleen A. McGinty, Chair, CEQ; Senator Barbara Boxer, Senator Diane Feinstein, Congressman Sam Farr, Congressman Dana Rohrabacher

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# Some international reviews on the Letter to the President Clinton

From: Don McAllister mcall@superaje.com
To: Michael Rozengurt mrozengurt@juno.com
Subbject Re: Your problem - my general answer

Date: Wed, 01 Apr 1998 09:02:21 -0500

Dear Dr. Michael Rozengurt,

That is an immensely powerful yet compact statement of implications of the massive construction of artificial reservoirs in this century. The runoff lock-up have a series of implications for riverine and coastal ecosystems.

The only comparable statement I had seen was for Hudson Bay where it was said that accumulative effects of hydroelectric dam construction in its drainage basin had lead to a 50% increase in winter runoff. The concomitment reduction in spring runoff, I hazarded in a popular paper, would influence ice breakup times, nutrient surfacing due to reduced entrainment, coastal water warming (ice reflects solar radiation), etc. The implications of reservoir lock-up of runoff are complicated by deforestation (presumably speeding up runoff) and especially agriculture (presumably speeding up runoff and adding nutrients from fertilizers and pesticides). How do these daming, deforestation and agriculture

interact? Would you be willin to publish these observations?

Don McAllister (Canada)

From: tbotterweg@unvienna.un.orgt

To: mrozengurt@juno.com

Subject: Re: Letter to Bill Clinton, the President

Date: Mon, 15 Jun 98 10:08:14 CET

Dear Dr. Rozengurt,

Thank you for sending me a copy of your letter to the President of the USA. Given the fact that you explicitly internationalize the ocean environmental issue, I forwarded the letter to persons in my professional network (Black Sea Programme, EU Phare and Tacis, EU Directorate General 11, dealing with environment and water, the (interim) International Commission for the Danube River Protection Convention, the UNDP-GEF Danube project (to the United Nations GEMS/Water/ Programme team). I hope that your letter will have the effect you are wishing for,

best regards,

Teun Botterweg

From: "Johan Kuylenstierna"<kuylenstierna@un.org

To: <mrozengurt@juno.com>

Subject: Re: LETTER TO PRESIDENT Date: Mon, 22 Jun 98 09:22:14 -0500

Dear Dr. Rozengurt,

Thank you for sending this interesting letter. It is very true that these links between freshwater systems and coastal zone management is indeed lacking in most planning not only in policy but also within the scientific community. This was obvious at the last years Stockholm Water Symposium that was aiming at strengthening this link by promoting interdisipline discussions, but, to some extent, failed since most people does not want to leave the "safety of being in a room with alikes only"!

Good luck, and keep me posted of the results of this letter.

Sincerely yours, Johan Kuylenstierna

From: "Wolter, Hans (AGLW)" < Hans. Wolter@fao.org

To:mrozengurt@juno.com

Cc: "Klohn, Wulf (AGLW)" < Wulf.Klohn@fao.org>

Subject: RE: LETTER TO PRESIDENT Date: Thu, 18 Jun 1998 10:49:54 +0200

Thank you for copying your thoughtful letter to me. You have touched on some very delicate issues. So far we thought that it is sufficient if about 25 % of the annual run-off remain in the water course to sustain biodiversity and the character of the river. Now you are saying that the maximum abstraction is 25 %. These are difficult questions in the light of increasing food demands.

Best regards

Hans W. Wolter (Chief Water Development and Management Service. FAO)

From: <vivian.newman@sfsierra.sierraclub.org To: mrozengurt@juno.com Subject: Re: LETTER to PRESIDENT . Date: Sat, 12 Jun 99 19:07:06 -0800 Dear Michael,

Thanks for the message. I have forwarded it to several Sierra Club listserves with the cover note to the effect that this is a vital message apparently still pretty much unheeded but growing in importance each year.

Best regards, Vivian Newman

from: Ed Ongley, Ed.Ongley@CCIW.ca

To: "'Michael Rozengurt <u>mrozengurt@juno.com</u>

Subject Re: Your **Letter** to **President** Date: Fri, 19 Jun 1998 08:56:32 -0400

# Dear Dr. Rozengurt,

Thank you for cc'ing me with this letter. It is a most useful statement that your President should find difficult to ignore. It makes a strong case for US participation in the United Nations protocol on "Protection of the Marine Environment from Land-Based Activities" that was signed in Washington in November of 1995.

Ed Ongley, Ph.D. (Water Management Consultant, and Senior Advisor)

Return-path: Wulf.Klohn@fao.org

To: "'Michael Rozengurt'" mrozengurt@juno.com

Date: Wed, 24 Feb 1999 10:00:00 +0100 Subject Re: Your **Letter to President** 

# Dear Michael,

I fully agree with the substance of the letter: coastal systems are a part of the river basin, and damage to coastal systems has never been accounted for or traded off in looking for benefits and costs. Just working on water and agriculture in the Nile basin, where plans are to push river basin "efficiency" from 87 percent to 99 percent. With my assistant we were arguing about the use of the word "efficiency" in this case. She feels that there a conotation of good to "efficiency" and therefore it is wrongly used in this case.

I held the old-fashioned engineering view that efficiency is the ratio between a given level and the ceiling, for good or for worse. Have you come across a more suitable word to state the degree to which a river is prevented from reaching the coastal zone? More generally, however, I find that non-accounting for externalized damage is a universal practice and have a suspicion that most of what is called "development" is simply private appropriation of public goods without regard for lost environmental services accruing to the community or to third parties, and for sustainability. At the same time wealth is increasing, the number of marginalized people is increasing, and once they are marginalized, they can hardly be expected to care about anything but > surviving.

Current neo-liberal theology, however, has it that everything can be substituted and will be substituted in due course, ignoring that all the goodies come from an environmetal pool that is not infinite. I am contributing to the working party on the ethics of the use of water with a chapter on the ethics of agricultural water use. In spite of the enormous importance of water in the imaginary (myths and religion). I find few ethical norms that are specifically about water, such as: if you are not going to use it (drink it?), let it flow undisturbed. What find is mostly > about the weak and the poor being unable to access a life-sustaining resource: water, food, even air. The same way as food, water may very well be paid for: the trouble is that so many people do not have even the little amount of money (or equivalent) needed to access a minimum of water or food. So much for the water crisis.

Have a nice day, Wulf Klohn

From: wirasinhar@who.ch To: Michael Rozengurt

# Dear Michael.

Thank you for copying your informative letter dated 23 May 98 to the President to us at the Water Supply and Sanitation Collaborative Council. We will transfer this background to the ongoing exercise on development of a Vision for water for the 21st century. We trust that your concerns are receiving due attention and support in the USA. Regards

Ranjith Wirasinha

Suzanne.Bolton@noaa.gov To: mrozengurt@juno.com

Date: 21 Jun 1999 12:31:47 -0400 Subject Re: Letter to **President** 

Keep of feeping on. We have too few scientist willing to put forward sound positions on a political level and the country suffers for it and the world.

Hope you are well.

Suz Bolton (**NOAA**)

Return-path: graemea@intekom.co.za

To: Michael Rozengurt mrozengurt@juno.com

Date: Wed, 28 Jul 1999 09:21:41 -0400

Subject: Re: Letter to Bill Clinton, THE PRESIDENT

Yes, the Southern African Rivers Association has received the letter, with thanks. We endorse it and you can use of our name. We represent professional river touring companies and pro river guides in Southern Africa.

Regards

return-path: <shonjo@whoi.edu

> To: Michael Rozengurt <mrozengurt@juno.com>

> Date: Wed, 26 Jan 2000 10:01:22 -0500

Subject: Reprint request

Dear Michael,

I read your public letter and a copy of the letter to the President with great interest. I certainly agree and support we have to tell the executive segment of government to let them know the candid facts. I am wondering if any politician can seriously speak about a 50-years > restoration program rather than 10 years of small patch ups on environmental issues such as estuary.

"One can not make something from nothing" can be applied to the global fishery as well. If it all possible, I would like to have a reprint of your paper that was cited at the end of your e-mail: Rozengurt, M.A. 1999. "Running on entropy: the effect of water diversions on estuary - coastal ecosystems". In Proceedings of the 19 Annual American Geophysical Union "HYDROLOGICAL DAYS", August 16-20, Colorado State Univ., Fort Collins, Colorado.

Sincerely yours,

# Sus Honjo

From: Doceanus@aol.com
To: mrozengurt@juno.com

Date: Mon, 6 Mar 2000 19:55:13 EST Subject: Re: LETTER TO **PRESIDENT** 

Dear Michael.

Excellent letter. Concise and to the point! My endorsement. All the best Don Hinrichsen, author of Coastal Waters of the World: Trends, Threats and Strategies (Island Press, 1998

From: Antony Turton awiru@postino.up.ac.za To: Michael A Rozengurt mrozengurt@juno.com

Date: Mon, 07 Mar 1999 11:36:57 +0200 Subject: Re: the Letter to the **President** Organization: AWIRU: University of Pretoria

#### Michael,

Thanks for copying your letter to me. The issue is complex and certainly relevant to Southern Africa. We have literally thousands of dams here, many of which are not well designed or construced. In Zimbabwe for example, each farmer has built their own dam with figures being bandied around that suggest literally thousands of these structures. While the large dams have been well designed, and are in fact subject to operating rules that seek to emulate normal flooding to some extent, it is these small dams that are causing problems. With the recent flooding in Zimbabwe, Mozambique and South Africa, one is forced to ask the question to what extent uncontrolled dambuilding played a role. While I have no hard data at present, I do know that these many smaller dams have stopped the normal (reduced) streamflow totally. Going back to Zimbabwe again, I know that the streamflow has been reduced to zero with a resultant loss of riparian habitat. This lost vegetation would play a role in major flood events such as we have just experienced here, resulting in rapid runoff and loss in retention time. The result is a loss in the natural attenuation capacity of ecosystems. The problem is that with our ardity and erratic precipitation patterns, dams are certainly needed. The new South African water law protects water for aquatic ecosystems as a legal right. In other words, ecosystems are entitled to use their own water for the first time in our history. This means also that dam management has changed to incorporate this notion. Again the problem is that large dams can do this, whereas smaller dams cannot. I thank you again for your insight and energy. Please keep me in the loop.

Best wishes,

From: "Kraft, George" gkraft@uwsp.edu to: 'Michael A Rozengurt' <mrozengurt@juno.com>

Date: Wed, 29 Mar 2000 07:24:42 -0600

Subject RE: Letter **to President** Return-Path: gkraft@uwsp.edu

Wow. Very succinct and eloquent. Thank you for copying me this letter.

George Kraft, Professor, College of Natural Resources, Univ. of Wisconsin

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From: "Richard Volk" <rvolk@usaid.gov>

To: <mrozengurt@juno.com>

Date: Wed, 5 Apr 2000 15:24:59 EDT Subject: re: Fw: Letter to President

Dear Michael,

Your letter hits the mark, and your testimony to the Cal-Fed is equally poignant. Thanks for sharing both.

Richard Volk, Coastal & Aquatic Programs; USAID/G/ENV

Ronald Reagan Building, Room 3.8, Washington, DC USA 20523-3800; TEL: 202/712-5373

FAX: 202/216-3174

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From: Olga Sorokina < sorokina@sdios.sea.ru

To: mrozengurt@jino.com

Date: Wed, 03 May 2000 13:33:44 +0400

Subject: Yu. Sorokin's Letter

# Dear Dr. Rozengurt,

Thank you for providing materials for Hydrology days proceedings. Yours presentation of the Application of Laws of thermodynamics to River-Delta-Estuary Ecosystems and effects of waters diversions on the estuarine Ecosystems are clearly presented and well argued. The most spectacular example of grave impact of river Runoff diversions gives the Black Sea. The gross infection of river water into its NW part creates in the Coriolis field the basic driving force for the Main Rim Current the core of the Black circulation and ventilation. The diversion endangers not only whole systems of this circulation but also the stability of redox regime in this meromictic basin. My fundamental monograph discussing Black Sea problems is now in press by

Backhuys Publishers. Leiden. Holland. I support yours efforts and initiative.

Best regards,

Yuri Sorokin, a Member Russian Academy of Sciences, Gelendzhik

From: Tolmazin.David@epamail.epa.gov

To: mrozengurt@juno.com

Date: Mon, 17 Jul 2000 09:08:09 -0400

Dear Dr. Rozengurt,

Your letter pervade the W.W.W. and was translated in Japanese. EPA has established procedures how it elevates an estuarine system to the put of estuaries of national significance with subsequent formation of the management conference and allotments of funding by the Congress. Your methodology expressed in the Letter of the Century and the seminal work "Running on empty" should provide for key criteria how the above selection process occurs. Why not to mention these facts to the AGU to push the cart along the slope. You can request the set of rules for selection of estuaries from the EPA of the basis of FOIA. I believe you will find these rules

rather diluted, and then can step in with you clear-cut proposal. Go for it.

Good luck.

#### D.Tolmazin Ph.D

to: Michael Rozengurt <mrozengurt@juno.com>

From: URL: http://www.ovi.ca E-mail: mcall@superaje.com

Dear Michael,

That is an immensely powerful yet compact statement of implications of the massive construction of artificial reservoirs in this century. The runoff lock-up have a series of implications for riverine and coastal ecosystems. The only comparable statement I had seen was for Hudson Bay where it was said that accumulative effects of hydroelectric dam construction in its drainage basin had lead to a 50% increase in winter runoff. The concomitment reduction in spring runoff, I hazarded in a popular paper, would influence ice breakup times, nutrient surfacing due to reduced entrainment, coastal water warming (ice reflects solar radiation), etc.

The implications of reservoir lock-up of runoff are complicated by deforestation (presumably speeding up runoff) and especially agriculture (presumably speeding up runoff and adding nutrients from fertilizers and pesticides). How do these daming, deforestation and agriculture interact? Would you be willin to publish these observations in Sea Wind, bulletin of Ocean Voice International?

Don McAllister

Don E. McAllister /& Canadian Centre for Biodiversity

Ocean Voice International /Canadian Museum of Nature

> Box 37026, 3332 McCarthy Rd. /Box 3443, Station D

> Ottawa, ON K1V 0W0, Canada / Ottawa, ON K1P 6P4 > (or: ah194@freenet.carleton.ca) Tel: (613) 264-8986, Fax: (613) 264-9204

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From: Don McAllister mcall@superaje.com
To: Michael Rozengurt mrozengurt@juno.com

Date: Mon, 28 Feb 2000 08:48:21 -0500

Subject: Running on entropy: Some preliminary thoughts inspired by Rozengurt's 1999 Running on entropy.

Thank you for sending your stimulating paper. I have read your paper with deep interest. It raises, as your earlier papers have, profound questions about the impacts of impoundment of rivers. Especially valuable is the calculation of truncation levels beyond which ecosystems will be severely impaired. Thanks for writing such as stimulating paper. It is a major contribution. I do hope that you continue in this line of research.

.Cordially, Don McAllister